

and compilation of facts from the literature than a carefully digested product of it. It is in no sense critical and even lacks organization. This, of course, is in part a necessary outcome of the concreteness, and it is possible that it is the best sort of statement in view of the aim. Very seldom does the author refer to the fundamental physics and chemistry of plant activity. No mention is made of the application of the Van't Hoff temperature law of rate of chemical reaction or of the Weber-Fechner law to plant processes. Again, no adequate picture is given of the physics of the material and energy exchange of the foliage leaf, a set of processes which BROWN and ESCOMB have, in the main, reduced to pure physics. In this connection, we find the author emphasizing BLACKMAN'S misleading statement that the foliage leaf under illumination maintains a temperature considerably above the surrounding air. This is possible if the evaporation power of the air or the water supply of the leaf is low. On the other hand, if the water supply of the leaf and the evaporation power of the air are high, the leaf will maintain a temperature below that of the surrounding air whether illuminated or not. In spite of the fact that the significant work of BROWN and ESCOMB has been much cited, it has failed to have a sufficient influence upon the statements in texts.

The book is marked by carefully guarded statements, which is certainly a virtue in any scientific work; but this is often carried to an exasperating extreme, involving guards where our knowledge is sure. It is seldom that a text is so free from personal hobbies of the author.

The greatest disappointment in the book lies in the apparently careless way in which it was finished. Minor errors are numerous. Careful reading of a very few pages shows a number of these: p. 203, the use of the old term "cyanophyll" for the term chlorophyllin; p. 204, "aqueous carbon dioxide" for aqueous solution of carbonic acid; p. 205, "fruit sugar" for grape sugar. In many cases a change in phrasing or in choice of words would make the description much more telling; p. 204, the author speaks of the decomposition of  $\text{CO}_2$  and  $\text{H}_2\text{O}$  when the thing to be emphasized is the *reduction* of carbonic acid. The need of the criticism of the manuscript by a number of physiologists is evident.—WILLIAM CROCKER.

#### NOTES FOR STUDENTS

**Current taxonomic literature.**—J. C. ARTHUR (Bull. Torr. Bot. Club 38: 369-378. 1911) in continuation of monographic work on the North American rusts records new species in *Puccinia* and *Uromyces*. A "Key to American and European *Allium* rusts" is included in the article.—H. H. BARTLETT (Rhodora 13: 163-165. 1911) has published a new species of *Euphorbia* (*E. arundelana*) from Maryland. The same author (*ibid.* 209-211. pl. 93) describes and illustrates a new species of *Oenothera* (*O. Tracyi*); the species is based on specimens grown from seed collected by S. M. TRACY near Tensaw, Ala.—W. H. BLANCHARD (*ibid.* 193-195) records a new variety of *Rubus* (*R. canadensis* var. *septemfoliolatus*) from Newfoundland; the same

author (*ibid.* 168-171) raised *Lycopodium complanatum* var. *flabelliforme* to specific rank, and (*ibid.* 55, 56) proposes a new name *Rubus amicalis* for *R. amabilis* Blanchard, not Focke.—T. S. BRANDEGEE (Univ. Calif. Pub. Botany 4:177-194. 1911) in continuation of his work on Mexican plants has published 42 new species of flowering plants and describes a new genus (*Lithophytum*), doubtfully referred to the Solanaceae.—J. BRIQUET (Ann. Conserv. & Jard. Bot. Genève 13-14:369-389 [29-49]. 1911) under the title "Decades plantarum novarum vel minus cognitarum" has published 11 new species of Caryophyllaceae and Labiatae from Mexico and South America.—N. L. BRITTON (Torreya 11:130, 152. 1911) records two new species of *Opuntia*, *O. jamaicensis* from Jamaica and *O. Tracyi* from Mississippi. The same author (*ibid.* 174) describes a new *Hernandia* (*H. catalpifolia* Britt. & Harris) from Jamaica.—F. BUBÁK (Ber. Deutsch. Bot. Gesells. 29:381-385. pl. 14. 1911) under the title "Ein neuer Pilz mit sympodialer Konidienbildung" describes and illustrates a new genus (*Acarosporium* Bubák & Vleugel) from Sweden. The fungus was found growing on dead leaves of *Betula odorata*.—R. E. BUCHANAN (Mycologia 3:170-174. pls. 50, 51. 1911) in an article on the "Morphology of the genus *Cephalosporium*" describes and illustrates a new species and variety of this genus; both were obtained by isolation from humus-rich soil and grown on dextrose agar.—B. F. BUSH (Rhodora 13:166-168. 1911) gives a synopsis of the Missouri species of *Rhexia*, recognizing three species, one (*R. latifolia*) being new to science.—J. CARDOT (Rev. Bryol. 38:49-52. 1911) under the title "Deux genres nouveaux de la région magellanique" describes two new genera of mosses, namely *Neurolooma* and *Hygrodicranum*.—C. CHRISTENSEN (Rep. Nov. Sp. 9:370-372. 1911) describes four new ferns, one (*Athyrium paucifrons*) being from Mexico.—F. S. COLLINS (Rhodora 13:184-187. 1911) under the title "Notes on algae" describes a new species in the genus *Dermocarpa* from Barbados, and one in *Chantransia* from North Carolina; and to the latter genus several species are transferred from *Acrochaetium*.—E. B. COPELAND (Phil. Journ. Sci. Bot. 6:65-92, 133-143, 145-148. pls. 12-25. 1911) has published some 65 new species of ferns from Borneo, the Philippine Islands, and Papua or New Guinea. Three new genera are proposed, namely: *Craspedodictyum*, *Dendroconche*, and *Merinthosorus*.—S. T. DUNN (Kew Bull. 310-313. 1911) describes a new genus (*Dipentodon*) from Yunnan, China; the genus is doubtfully placed in the Celastraceae.—W. W. EGGLESTON (Bull. Torr. Bot. Club 38:243, 244. 1911) describes two new species of *Crataegus* from Massachusetts.—A. W. EVANS (*ibid.* 205-222. pls. 9, 10) records 34 species of Hepaticae from the Bahama Islands, of which two are new to science; and (*ibid.* 251-286. pls. 11, 12) in an article entitled "Hepaticae of Puerto Rico" proposes two new genera, namely, *Leptocolea*, based on *Lejeunea micrandroecia* Spruce, and *Aphanolejeunea*, based on *Jungermannia microscopica* Tayl. Several new species and new combinations are included in the article.—M. L. FERNALD (Rhodora 13:109-162. pls. 86-91. 1911) gives a very interesting and significant account of a botanical expedition to Newfoundland and southern

Labrador during the summer of 1910. The author, after a careful study, concludes that "the indigenous flora of Newfoundland consists primarily of plants which occur to the north, in Labrador, or to the southwest, chiefly along the Atlantic seaboard or the Coastal Plain." Incidentally a new variety of *Carex* (*C. Hornschuchiana* Hoppe var. *laurentiana*) is recorded from Newfoundland and Anticosti.—M. L. FERNALD and K. M. WIEGAND (*ibid.* 188) record a new variety of *Epilobium* (*E. palustre* L. var. *longirameum*) from Labrador and Quebec.—F. W. FOXWORTHY (*Phil. Journ. Sci. Bot.* 6:149-177. *pls.* 26-33. 1911) records 26 species of gymnosperms from the Philippine Islands, including a new species of *Podocarpus* and two hitherto unknown species of *Gnetum*.—T. C. FRYE (*Proc. Wash. Acad. Sci.* 12:271-328. 1910) has published an illustrated taxonomic treatment of the "Polytrichaceae of western North America," recognizing for this region seven genera and about 26 species.—E. B. HARGER (*Rhodora* 13:37-39. 1911) records a new species of *Arabis* (*A. viridis*) from New England.—H. HARMS (*Rep. Nov. Sp.* 9:439, 440. 1911) has published a new species of *Poiretia* (*P. longipes*) from Brazil.—E. HEESE (*Monats. für Kakteenk.* 21:132. 1911) describes and illustrates a new species of *Echinocactus* (*E. Gürkeanus*), introduced into European cultivation from Bolivia.—A. W. HILL (*Kew Bull.* 281-302. 1911) on "*Strychnos Ignatii* and other East Indian and Philippine species of *Strychnos*" recognizes about 24 species, some of which are new; a key to the species is included.—C. N. JENSEN and V. B. STEWART (*Phytopathology* 1:120-125. 1911) in an article on "Anthracnose of *Schizanthus*" has published a new species of fungus (*Colletotrichum schizanthi*). The fungus was observed on various parts of *Schizanthus* at Ithaca, N.Y.—T. LOESENER (*Rep. Nov. Sp.* 9:355-367. 1911) under the title "Mexikanische und zentralamerikanische Novitäten" has published several new species and varieties of flowering plants.—J. LUNELL (*Am. Mid. Nat.* 2:122-128. 1911) records 4 new species and 8 new varieties of flowering plants from North Dakota and Minnesota.—A. H. MOORE (*Bot. Jahrb.* 45:426, 427. 1911) gives a supplementary note on his recent monographic treatment of *Spilanthes*, recording further data on this genus, and includes descriptions of two new species from South America.—W. A. MURRILL (*Mycologia* 3:165-169. *pl.* 49. 1911) under the heading "Illustrations of fungi IX" describes and illustrates several species, including a hitherto unrecorded species of *Hebeloma* (*H. praecox*) from New York; the same author (*ibid.* 189-199) in a third article on "The Agaricaceae of tropical North America" treats 6 genera, describing new species in *Clitocybe* (6), *Melanoleuca* (3), *Hydrocybe* (10), and *Hygrophorus* (2).—C. H. PECK (*N.Y. State Mus. Bull.* No. 150. pp. 100. *pls.* 4, 6, 121-123. 1911) presents the annual report of the state botanist for the year 1910, placing on record valuable data concerning particularly the flora of New York, and includes descriptions of 54 new species and varieties, mainly of fungi, but including also some flowering plants from different parts of the United States.—D. PRAIN (*Kew Bull.* 231, 232, 317, 318. 1911) has published 2 new genera (*Cyrtogonone* and *Discoglyprena*) of the

Euphorbiaceae from tropical Africa.—J. A. PURPUS (Monats. für Kakteenk. 21:97-102. 1911) describes and illustrates a new species of *Mamillaria* (*M. valida*) from Mexico.—L. QUEHL (*ibid.* 119, 120. 1911) records a new species of *Echinocactus* (*E. nidulans*) from Mexico.—L. RADLKOFER (Phil. Journ. Sci. Bot. 6:181-183. 1911) has published 4 new species of Sapindaceae from the Philippine Islands. The same author (Rep. Nov. Sp. 9:372, 373. 1911) has described a new *Trichilia* (*T. stelligera*), and (*ibid.* 374-377) 5 new species in the Sapindaceae from Dutch Guiana.—C. B. ROBINSON (Phil. Journ. Sci. Bot. 6:185-228. 1911) under the title "Botanical notes upon the Island of Polillo" gives a list of the plants known from this island and includes descriptions of 18 species new to science.—J. F. ROCK (Terr. Hawaii, Board Agr. & Forestry. Div. Forestry Bull. No. 1. pp. 1-14. pls. 1-6. 1911) records a new species of *Sapindus* and proposes a new genus (*Hibiscadelphus*) of the Malvaceae from the Hawaiian Islands.—R. A. ROLFE (Bot. Mag. t. 8392) has described and illustrated a new species of *Acineta* (*A. Moorei*) from South America.—E. ROSENSTOCK (Rep. Nov. Sp. 9:342-344. 1911) has published 2 new species and a variety of ferns from Bolivia.—F. J. SEAVER (Mycologia 3:207-230. pls. 53, 54. 1911) completes his consideration of "The Hypocreales of North America."—C. L. SHEAR (Phytopathology 1:116-119. 1911) describes a new fungus (*Cryptosporella viticola*) which is said to be the cause of the so-called "dead-arm" of the grape.—P. A. SACCARDO (Ann. Mycol. 9:249-257. 1911) under the title "Notae mycologicae" gives an annotated list of fungi, including descriptions of several new species, 4 of which are from New York and Florida.—V. SCHIFFNER (Oesterr. Bot. Zeitschr. 61:261-264. 1911) in continuation of his studies on the genus *Metzgeria* records 2 new species from South America.—R. SCHLECHTER (Rep. Nov. Sp. 9:428-439. 1911) has published several new species of orchids, including two from America and two from the Philippine Islands.—F. L. SCRIBNER (Bull. Torr. Bot. Club 38:319-328. 1911) under the title "Notes on certain species of *Muhlenbergia*" records 2 new species in this genus from western United States and northern Mexico.—T. A. SPRAGUE (Bot. Mag. t. 8378. 1911) describes and illustrates a new species of *Columnnea* (*C. gloriosa*) from Costa Rica. The plant has been introduced into cultivation at Erfurt, Germany, and at the Royal Botanic Gardens, Kew, England.—O. STAPF (Kew Bull. 318, 319. 1911) has published a new genus (*Sclerodactylon*) of the Gramineae from Madagascar.—F. STEPHANI (Hedwigia 51:61-64. 1911) has proposed a new genus (*Goebeliella*) of Hepaticae, based on *Frullania cornigera* Mitt. The genus, as known at the present time, embraces two species, one from New Zealand, the other from New Caledonia.—G. SCWEINFURTH and R. MUSCHLER (Bot. Jarhb. 45:428-430. 1911) propose a new genus (*Lifago*) of Compositae from Algiers.—H. and P. SYDOW (Ann. Mycol. 9:142-146. pl. 9. 1911) under the title of "Novae fungorum species" have published several species new to science, including 4 from the Philippine Islands. The same authors (*ibid.* 277, 278) describe and figure a new generic type (*Scleropycnis*) which was found parasitic on branches

of *Abies excelsa* in the Erzgebirge.—I. URBAN (Bot. Jahrb. 45:432-470. 1911) in co-operation with several specialists, under the title "Plantae novae andinae imprimis Weberbauerianae V," has published 72 new species of flowering plants from South America.—WOOD and FRANKS (Kew Bull. 274, 275. 1911) have published a new genus (*Siphonochilus*) of the Scitamineae from Natal.—H. F. WERNHAM (Journ. Bot. 49:206-216. 1911) presents a revision of the American genus *Hamelia*, recognizing 27 species, of which one-third are characterized as new. The genus attains its greatest specific diversity in Mexico.—H. WOLFF (Rep. Nov. Sp. 9:417-422. 1911) under the title "Umbelliferae Novae I" has published several new species and proposes the following new genera from Mexico: *Nematosciadium*, *Schiedeophytum*, and *Langlassea*.—N. WORONICHIN (Ann. Mycol. 9:217-225. 1911) has characterized a new genus (*Physalosporina*) of the Pyrenomycetes. The genus, as at present understood, embraces 6 species having a distribution in the United States and Europe.—J. M. GREENMAN.

**Biology of rusts.**—The results of further studies on the biology of rusts are reported by FISCHER in two papers. The first one<sup>6</sup> is a continuation of a series of former studies, and includes four additional forms: *Uromyces caryophyllinus* (Schrank) Winter on *Saponaria ocymoides* L. and *Euphorbia Gerardiana* Jacq.; *Gymnosporangium tremelloides* Hartig on *Juniperus communis* L., *Sorbus Aria* (L.) Crantz, *S. chamaemespilus* (L.) Crantz, and the hybrid forms *S. hybrida* Koch (*S. aucuparia* × *S. Aria*) and *S. latifolia* (Lam.) Pers. (*S. Aria* × *S. torminalis*); *Ochrospora Sorbi* (Oud.) Diet. on *Aruncus sylvester* Kost. and *Anemone nemorosa* L.; and *Puccinia albulensis* P. Magn., a micro-*Puccinia* on *Veronica bellidioides* L. and *V. aphylla* L.

The discovery that the teleutospore generation belonging to *Aecidium Euphorbiae Gerardianae* occurs on members of the Caryophyllaceae serves as an illustration of the proposition formulated by FISCHER that on the hosts bearing the aecidial generation of certain heteroecious rusts there occur also micro- and lepto-forms whose teleutospores resemble the teleutospores of the heteroecious forms in question. The aecidium on *Euphorbia Gerardiana* has generally been regarded as belonging to *Uromyces excavatus* (DC.) P. Magnus on the same host; but the close resemblance between the teleutospores of *U. excavatus* and those of *U. caryophyllinus* occurring on members of the pink family led TRANZSCHEL to predict that the teleutospore form of *Aecidium Euphorbiae Gerardianae* would be found among the species of *Uromyces* parasitic on the Caryophyllaceae. The cultural work of FISCHER has shown the correctness of this prediction. It is probable that this resemblance, which has led to the discovery of the connection between aecidia and teleutospores in several cases, represents something more than a mere superficial similarity,

<sup>6</sup> FISCHER, ED., Beiträge zur Entwicklungsgeschichte der Uredineen. Centralbl. Bakt. II. 28:139-152. 1910.